

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of manufacturing a semiconductor device, the method comprising:

~~a first step of (a) forming a through-hole in an electrode, the electrode formed on a semiconductor element; having an electrode; and~~

~~(b) after the hole is formed in the electrode, forming a through-hole in the semiconductor element so as to be connected to the hole; and~~

~~a second step of (c) forming a conductive layer in a region including an inner side of the through-hole.~~

2. (New) The method of manufacturing a semiconductor device as defined in claim 1, wherein in the (c) step the conductive layer is formed on at least part of the electrode.

3. (New) The method of manufacturing a semiconductor device as defined in claim 1, wherein the through-hole comprises an edge portion and an intermediate portion of which width is larger than a width of the edge portion.

4. (New) The method of manufacturing a semiconductor device as defined in claim 3, wherein:

all portions of the intermediate portion are formed at substantially the same width; and

the through-hole comprises a tapered portion connecting the edge portion with the intermediate portion.

5. (New) The method of manufacturing a semiconductor device as defined in claim 1, wherein the through-hole is formed in the (b) step by first forming a pinhole of a width smaller than a width of the through-hole, then expanding the pinhole.

6. (New) The method of manufacturing a semiconductor device as defined in claim 5, wherein a cavity is formed in the (b) step at a position at which the through-hole is to be formed, then the pinhole is formed by positioning at the cavity.

7. (New) The method of manufacturing a semiconductor device as defined in claim 5, wherein the pinhole is formed by a laser beam, then the pinhole is enlarged by wet etching.

8. (New) The method of manufacturing a semiconductor device as defined in claim 1, the method further comprising a step of forming an electrical connection portion.

9. (New) The method of manufacturing a semiconductor device as defined in claim 8, wherein the electrical connection portion is formed as part of the conductive layer in the (c) step.

10. (New) The method of manufacturing a semiconductor device as defined in claim 1, the method further comprising a step of forming an insulation film on an inner surface of the through-hole, after the (b) step and before the (c) step, wherein the conductive layer is formed on the insulation film in the (c) step.

11. (New) The method of manufacturing a semiconductor device as defined in claim 5, the method further comprising a step of forming an insulation film on a inner surface of the through-hole, after the (b) step and before the (c) step, wherein the conductive layer is formed on the insulation film in the (c) step.

12. (New) The method of manufacturing a semiconductor device as defined in claim 7, the method further comprising a step of forming an insulation film on an inner

surface of the through-hole, after the (b) step and before the (c) step, wherein the conductive layer is formed on the insulation film in the (c) step.

13. (New) The method of manufacturing a semiconductor device as defined in claim 12, wherein the insulation film is formed by chemical vapor deposition.

14. (New) The method of manufacturing a semiconductor device as defined in claim 1, wherein the conductive layer is formed by electroless plating.

15. (New) The method of manufacturing a semiconductor device as defined in claim 14, wherein a catalyst is exposed in at least a region in which the conductive layer is formed, electroless plating is performed to extract a conductive material in the exposed region of the catalyst, and the conductive layer is formed from the conductive material.

16. (New) The method of manufacturing a semiconductor device as defined in claim 1, wherein the semiconductor element is a semiconductor chip.

17. (New) The method of manufacturing a semiconductor device as defined in claim 1, wherein the semiconductor element is part of a semiconductor wafer.

18. (New) A method of manufacturing a semiconductor device, the method comprising a step of stacking semiconductor devices that were formed by the method of manufacturing a semiconductor device as defined in claim 1, and electrically connecting together the conductive layer of each of upper and lower semiconductor devices.

19. (New) The method of manufacturing a semiconductor device as defined in claim 17, further comprising a step of cutting the semiconductor wafer into pieces.